All Saints C of E Primary School

Year 2 Addition and Subtraction

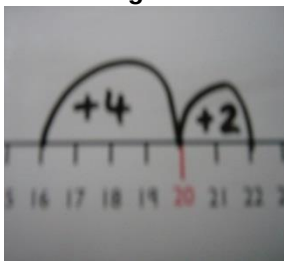
By the end of Year Two, children have been taught to:

Objective	Why is it important? Things to watch out for! Taught strategies
Add and subtract numbers using concrete, number lines (multiples of tens and units) and pictorial representations, including: 2 digit up to 99 2 digit +/- multiples of 10s (landmark numbers) *crossing the 100s boundary* Two 2 digit numbers crossing 100s boundary (low 100s)	

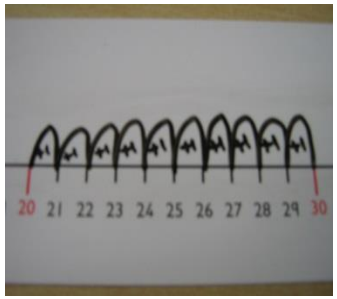
Progression in addition (structure and unstructured number lines)

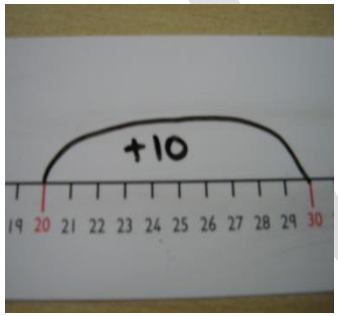
2 digit (teens number) + 1 digit that bridge the next landmark number, 16+6





Whole landmark number + a whole ten, 20 + 10

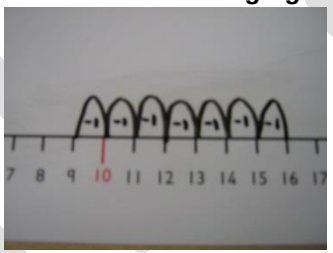


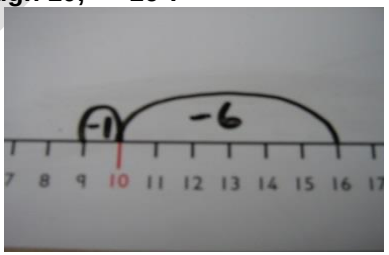


Some children will see the link straight away, whereas others will need to go through the steps to help them make links and to see what is happening to the tens number.

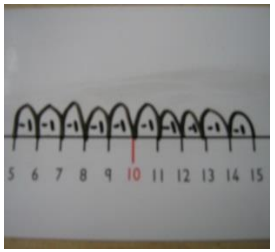
Progression in subtraction (structure and unstructured number lines)

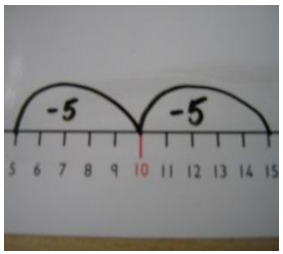
Teens number bridging through 10, 16-7

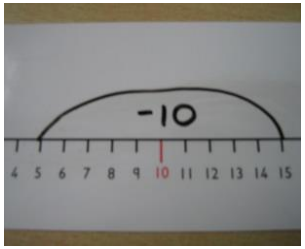




Mixed 2 digit – 10, (when secure in jumping whole tens then move onto jumping in multiples of 10) **15-10**
Reinforces the effect of subtracting a 10s number – highlight that the units number stays the same and the tens number *decreases.*

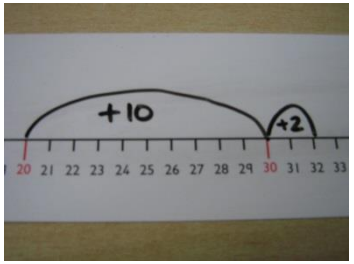


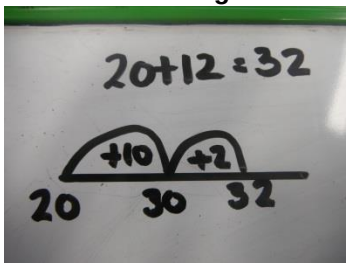




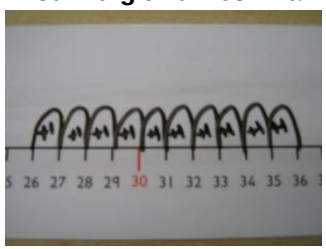
Some children may see the relationship straight away, whereas others may need to go through the steps, in order to build their own understanding.

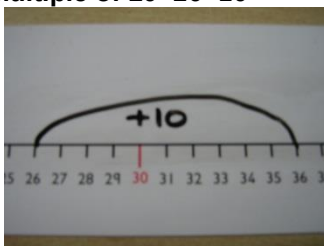
Whole landmark number + a teen's number e.g. 20 + 12



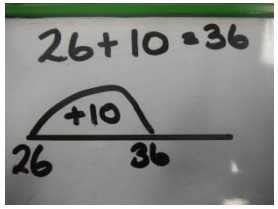


Mixed 2 digit number + a multiple of 10 26+10=



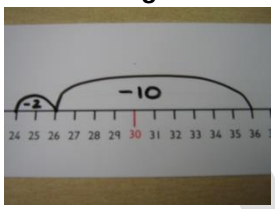


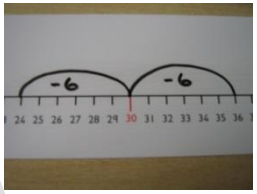
Some children will be able to see what is happening straight away whereas some will have to go through the steps to help them build understanding and make links and recognise what happens to the tens and units number when adding a multiple of 10.
When adding on a whole multiple of 10, we talk about how the tens number has increased and the units number has stayed the same.



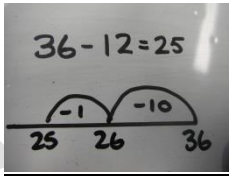
When children have a secure mental image of a number line and sequence of numbers they will progress onto **unstructured number lines** where numbers are not present underneath the line.

Mixed 2 digit – mixed 2 digit 36 - 12





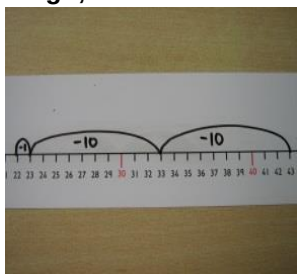


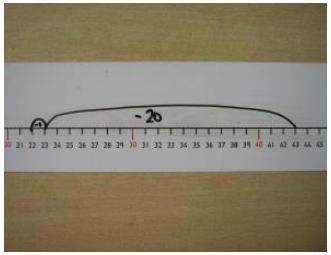


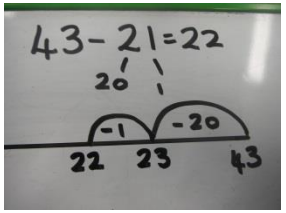
Getting children to show us different ways of solving the number sentences, helps them to revisit previous learning and to make choices about efficient methods.

Mixed 2 digit – mixed 2 digit, 43-21



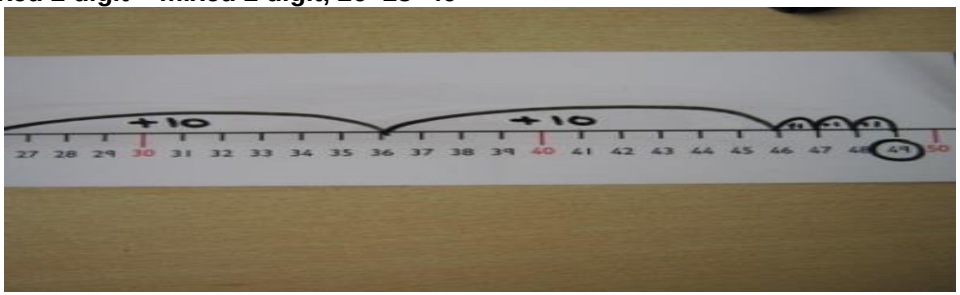


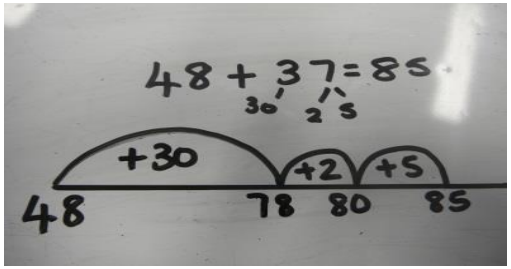
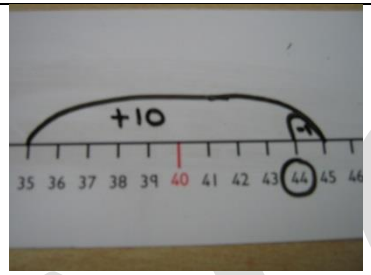


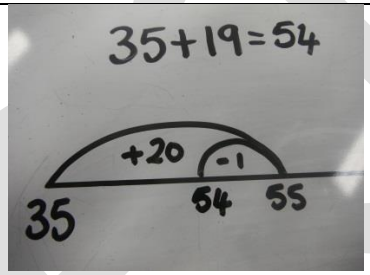


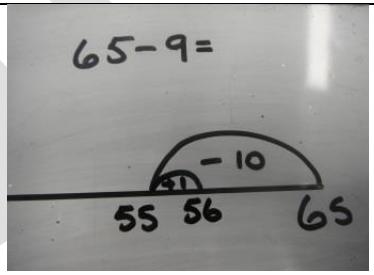
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Year 2

<table>
<tr>
<td colspan="2">Mixed 2 digit + mixed 2 digit, 26+23=49



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<tr>
<td>Apply their increasing knowledge of mental and written methods Mentally solve a calculation by adjusting values using knowledge of number bonds and landmark numbers i.e. 20+19 “I know 20+20=40 and 20+19=39 because 39 is one less than 20, so the answer is one less than 40, 39!”</td>
<td>



35+19
The calculation that we do is 35 + 20 because 19 is nearly 20 then we subtract one because we added one too many in the first place.</td>
<td>

65 – 9
The calculation that we do is 65 - 10 because 9 is nearly 10 and then we add one back, in order to compensate for the fact that we took too many away in the first place.</td>
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<td>Solve problems with (the bossy symbols) + and – using concrete objects and pictorial representations including those involving numbers, quantities and measures</td>
<td colspan="2">The term problem refers to a mathematical question that we don’t know the answer to yet! We will know the answer once we have worked it out. Maths should be problematic to help children develop their ability to unpick what type of maths needs to be done, understand the context of the problem, work logically and accurately. In all problem solving activities, we embrace mistakes as being a learning tool to help children develop as mathematicians, learn to be resilient, recognise their own mistakes and then correct them.
Some problems may be more obvious to solve than others. For example, a number sentence such as ‘96-54=’ is more obvious than ‘The school cook made ninety six cookies for the pudding at lunch. Fifty four cookies were eaten, how many were left?’
From the word problem a child has to understand the context of the problem and recognise that cookies being eaten implies subtraction,</td>
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Year 2

	therefore he/she needs to subtract. During problem solving activities, children are encouraged to use things to help them, such as; number lines, counters, cookies and even drawing things. Giving children real life problems that they would encounter on a daily basis are great for supporting their calculations. For example, during meal times, weighing out ingredients, out shopping, paying and giving change in shops, counting out socks for putting in pairs and many other daily situations. For example: I need 100g of sugar for my recipe. I have already weighed out 60g, how much more do I need to help me make my cakes? I have one metre of string and I need 70 cm to tie up one of my parcels. Will I have enough string to tie two parcels? I have 50p to spend at the shop. I buy an apple for 15p and a lolly for 7p. How much change will I get?
Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts to 100 (72+18=100 100-18=72)	*Number facts*, *number bonds*, *number pairs* or *number compliments* are terms used to describe two numbers that when *added* or *subtracted* total a specific number. *Number bonds* can be created for any number. This is key to making children fluent and flexible thinkers and helps lay the foundations for making links and developing relationships between numbers. *Number bonds for 20* would be : 20 +0 = 20 20 – 0 = 20 19 +1 = 20 20 –1 = 19 18 +2 = 20 20 -2 = 18, 20-3=…….. and so on By children knowing these facts, they can quickly apply their knowledge to different situations rather than always working it out. So knowing *number bonds* is not just about knowing number bonds to 10 or 20, children need to know number bonds of other numbers below 20 so that they are numerate and become fluent using these values. They need to know that 3 + 4 = 7 as well as 5 + 2 = 7. By knowing simple facts, children can apply their knowledge and use them with larger values – 8 + 2 = 10 80 + 20 = 100 800 + 200 = 1000.
	Inverse operations are opposite operations – one reverses the effect of the other. We talk about the *inverse* to explain how addition and subtraction are linked. For example if 100g – 60g = 40g. To check the calculation we would add the values 60g+40g = 100g. If the answer is 100g the initial calculation is correct, alternatively if the values are different, an error has been made. □ + 94 = 120 To solve this missing number problem, we need to carry out the subtraction 120-94 to find the missing value.
Show that addition of two numbers can be done in any order (*commutative*) and subtraction of one number from another cannot.	*Addition is a commutative* process. We can add a list of numbers in any order we like: 23 + 44 gives the same answer as 44 + 23. This is perfectly reasonable if we think about the number line. We can walk 23 steps then 44 more, or alternatively, we can walk 44 steps then 23 more—we'll end up at the same place. Ultimately, whichever way we add them up, they will always have the same answer. A child may say that we should count on from the largest number, which is quite correct in terms of being a more efficient way of calculating, however it does not make a difference to the end result. Subtraction is NOT a commutative process. Take a few moments to think about walking along the number line to see why. In the first case, 23 - 44, we end up with -21, but in the second, 44 - 23, we get +21. Definitely not the same! Put in a different context: we cannot take 44 things away from 23 – we just haven't got enough. We can take 23 things away from 44. When we are subtracting whole numbers, we always encourage children to subtract from the largest value to ensure these difficulties are not encountered.